CASE IMAGE

Preoperative evaluation of a pannus over an annuloplasty ring with live/real-time three-dimensional echocardiography

Gerçek zamanlı üç boyutlu ekokardiyografi ile anuloplasti halkası üzerindeki pannusun preoperatif değerlendirilmesi

Tolga Sinan Güvenç

Mert İlker Hayıroğlu

Cevdet Uğur Koçoğulları[#]

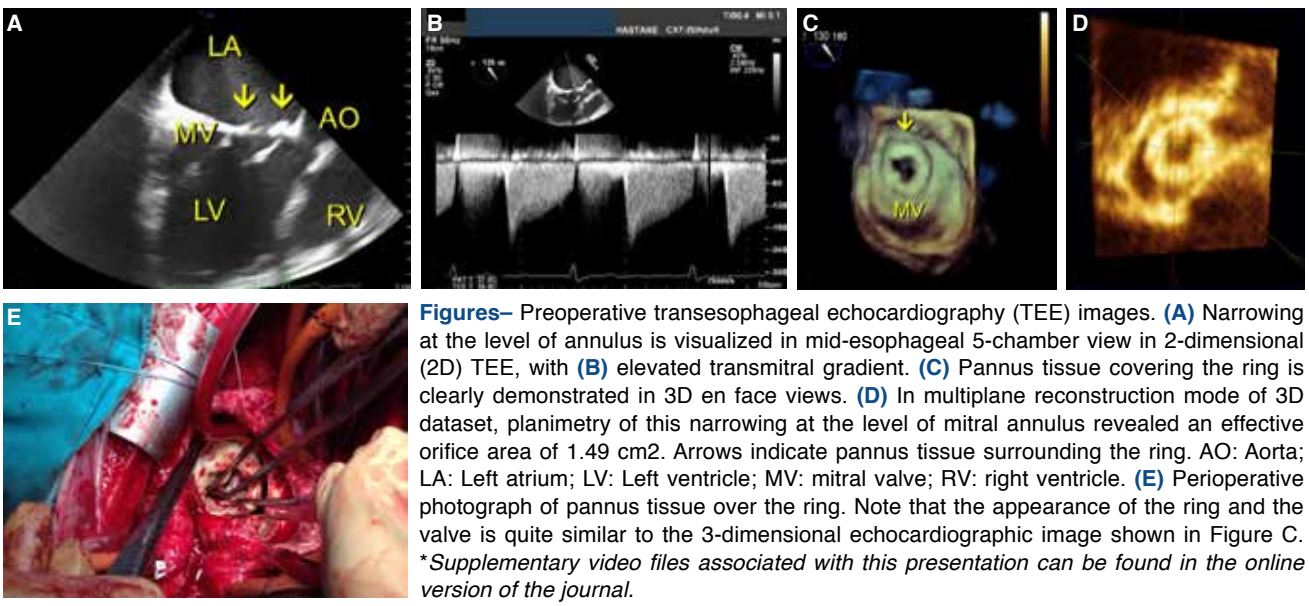
İlyas Kayacıoğlu[#]

Mehmet Eren

Department of Cardiology, Dr. Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, İstanbul, Turkey

[#]Department of Cardiovascular Surgery, Dr. Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, İstanbul, Turkey

A 46-year-old male patient was admitted to outpatient clinic with shortness of breath during exertion that had been present for 1 year. In 1990, he had undergone surgery for biatrial myxoma and concomitant mitral regurgitation (MR). Duran ring was implanted for mitral repair. Transthoracic echocardiography performed at clinic revealed severe MR and high transmitral gradient (mean 15 mmHg), as well as restriction in leaflet motion, but cause for MR and elevated gradient remained obscure. Annuloplasty ring itself appeared thickened and narrowed, with probable pannus overgrowth (Figure A, Video 1*). Maximal and mean transmitral gradients were measured at 23 mmHg and 15 mmHg, respectively (Figure B). En face views obtained with live/real-time 3-dimensional (3D) transesophageal echocardiography showed apparent thickening of the circular annuloplasty ring and narrowed effective orifice area (EOA) (Figure C, Video 2*). Narrowest portion of EOA was 1.49 cm^2 (0.74 cm^2/m^2), at the level of annuloplasty ring, which confirmed presence of moderate-to-severe valvular stenosis (Figure D, Video 3*). As the patient was symptomatic with moderate-to-severe MR and mitral stenosis, and had dysfunctional annuloplasty ring, surgical correction was offered. Operative findings were pannus overgrowth of annuloplasty ring, which had narrowed mitral orifice (Figure E). Valve was replaced with size 29 CarboMedics (CarboMedics, Inc.; Austin, TX, USA; now closed) mechanical prosthesis during the operation. Patient was discharged from hospital on fifth postoperative day, and he was free of symptoms at third month. This case draws attention to the importance of 3D echocardiography when determining surgical strategy.



Figures– Preoperative transesophageal echocardiography (TEE) images. **(A)** Narrowing at the level of annulus is visualized in mid-esophageal 5-chamber view in 2-dimensional (2D) TEE, with **(B)** elevated transmitral gradient. **(C)** Pannus tissue covering the ring is clearly demonstrated in 3D en face views. **(D)** In multiplane reconstruction mode of 3D dataset, planimetry of this narrowing at the level of mitral annulus revealed an effective orifice area of 1.49 cm2. Arrows indicate pannus tissue surrounding the ring. AO: Aorta; LA: Left atrium; LV: Left ventricle; MV: mitral valve; RV: right ventricle. **(E)** Perioperative photograph of pannus tissue over the ring. Note that the appearance of the ring and the valve is quite similar to the 3-dimensional echocardiographic image shown in Figure C. **Supplementary video files associated with this presentation can be found in the online version of the journal.*